EG&G ROCKY FLATS

EG&G ROCKY FLATS, INC.
ROCKY FLATS PLANT, P.O. BOX 464, GOLDEN, COLORADO 80402-0464 • (303) 966-7000

881 HILLSIDE

RESTORATION

PHASE 1-B

PROJECT MANAGEMENT PLAN,

WORK PROCEDURES,

QUALITY ASSURANCE PROJECT PLAN,

SITE SPECIFIC HEALTH AND SAFETY PLAN

FOR

CONSTRUCTION

SEPTEMBER 1990

856D0028.001

1. GENERAL INFORMATION

1.1 Project Identification

This Health and Safety Plan is applicable for UNC Geotech (UNC) employees working at Operable Unit 1 of the Rocky Flats Plant (RFP) Environmental Restoration Project during Construction Management of the Interim Measures/Interim Response Action (IM/IRA) Phase IB.

1.2 Project Duration

Approximate 18 July 1990 -- 8 October 1990 (79 Working Days)

1.3 Site History

The RFP, operated by EG&G Rocky Flats, Inc (EG&G), is a government-owned, contractor-operated facility that began operation in 1951. The RFP is part of the U.S Department of Energy's (DOE) nationwide nuclear weapons research, development, and production complex. In the past, both storage and disposal of hazardous and radioactive wastes occurred at on-site locations at the RFP. Some of these locations, including the 881 Hillside Area, have been identified as potential sources of environmental contamination. The 881 Hillside area has been designated as Operable Unit 1 (OU1) and includes 12 solid-waste management-units (SWMUs). Previous investigations at OU1 have identified organic and possible inorganic contaminants in the alluvial groundwater, and radioactive surface soil contamination from plutonium, americium, and uranium

EG&G ROCKY FLATS

ENVIRONMENTAL RESTORATION DEPARTMENT
DOCUMENT TRANSMITTAL FORM

Participant #	3	From.	Eileen Jemison
To	K. Taylor (RPD)	Loc	T130B
Loc	T130B	Tel	966-2302
Tel	966-5962		

The following controlled documents are being transmitted to you for your use and updating the associated manual Please sign and return the receipt acknowledgement to the sender within two weeks of the transmittal date

DATE OF TRANSMITTAL 10 / 1 / 90

Description	*Instruction*
881 Hillside Phase 1B Construction Manual	
- Project Management Plan	New Document
- Work Procedures	New Document
- Quality Assurance Project Plan	New Document
- Health and Safety Plan	New Document

The above documents have been received and/or updated as indicated, all superseded documents have been returned or destroyed

Signature _____ Date _____

UNC GEOTECH

ROCKY FLATS PROGRAM

HEALTH AND SAFETY PLAN

OPERABLE UNIT 1 - PHASE 1B

UNC GEOTECH HEALTH AND SAFETY PLAN
for the
INTERIM REMEDIAL ACTION
OPERABLE UNIT 1
881 HILLSIDE, PHASE 1-B, Rocky Flats Plant
Construction

This Health and Safety Plan identifies and documents the applicable Health and Safety measures that apply to the Rocky Flats Plant Interim Remedial Action for the 881 Hillside, Phase 1-B Construction

Approvals

J E Evered, Director
Environmental Restoration — 9/28/90 Date

J R Majestic, Director
Health and Safety — 9/28/90 Date

J Kirkebo
Chief Engineer — 9/28/90 Date

T C Greengard, Manager
Remediation Programs — 9/28/90 Date

J P Koffer, Project Manager — 9/28/90 Date

L. L. McInroy, QA Officer — 9/28/90 Date

REVIEW AND APPROVAL

Field Change Number: N/A

Date Effective _____

Review and Approval Signatures

RF Project Manager / 7/16/90 Date

Operational Health and Safety Supervisor / 7/15/90 Date

Denver Operations Manager / 7/16/90 Date

RF Program Manager (Acting) FOR C.A.J / 7/17/90 Date

Director - Denver Operations FOR JKA / 7/16/90 Date

Manager - Health, Safety, and Security MW Fullmer for TJ Dent / 7/17/90 Date

1 Scope of Work

DOE Rocky Flats Office (DOE/RFO) has initiated a multi-phased Interim Measures/Interim Response Action (IM/IRA) at OU1 to minimize the release of hazardous substances. The IM/IRA includes design and construction of an interceptor trench to collect the contaminated groundwater and a treatment plant to remove the hazardous substances prior to release or reuse of the treated water.

IM/IRA Phase 1B consists of

a) Erection of a pre-engineered building (BLDG #891) on a previously constructed foundation (Phase 1A)
b) Construction and installation of Influent Tanks, tank foundations, and a containment structure
c) Installation of the support utility systems for the building.

1.3 Hazard Assessment Overview

The following types of hazards are anticipated

(x) Physio-chemical, Toxic Chemical - Levels (x) >PEL-TWA
(x) >PEL-STEL
~~( )->HIGH~~
~~( )->SKIN-DESIGNATION~~
(x) <OSHA-PEL

~~( )-Bio-hazards~~
(x) Radioactive Materials
(x) Physical hazards
(x) Construction hazards

1.6 UNC Subcontractors Deliverables and Submittals

The following subcontractors have been awarded contracts to perform work at OU1 to complete Phase IB construction activities

Diamond Back Services	SHSC Signature /Date
Provided UNC Health and Safety Program Plan	____________/______
Provided this Health and Safety Plan	____________/______
Received Diamond Back Health and Safety Plan	____________/______
Reviewed/Approved Diamond Back SHSC qualifications	____________/______

____________	SHSC Signature /Date
Provided UNC Health and Safety Program Plan	____________/______
Provided this Health and Safety Plan	____________/______
Received subcontractors Health and Safety Plan	____________/______
Reviewed/Approved subcontractors SHSC qualifications	____________/______

____________	SHSC Signature /Date
Provided UNC Health and Safety Program Plan	____________/______
Provided this Health and Safety Plan	____________/______
Received subcontractors Health and Safety Plan	____________/______
Reviewed/Approved subcontractors SHSC qualifications	____________/______

____________	SHSC Signature /Date
Provided UNC Health and Safety Program Plan	____________/______
Provided this Health and Safety Plan	____________/______
Received subcontractors Health and Safety Plan	____________/______
Reviewed/Approved subcontractors SHSC qualifications	____________/______

2 FIELD CHANGE RECORDS

2.1 Record of Field Changes

Initial for attaching any Field Changes (Figure D-1) to this HSP. Enter the Field Change Number and Date Issued. File the completed field changes to this HSP at the end as attachments. Make *PEN AND INK* changes in the text to alert the reader to the changes as required in the Field Change.

FIELD CHANGE NUMBER	DATE ENTERED	SYNOPSIS OF CHANGE	INITIAL

HSP FIELD CHANGE

Field Change Number _____ Date Effective __

- *Pen and Ink* changes to be made in the HSP to date the reader of this change

_____

_____

_____

- Reason for the change to be incorporated into the HSP

_____

_____

_____

_____

- Text of Change to be incorporated

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Figure D-1 Field Change Form (Page 1 of 2)

HSP FIELD CHANGE

Field Change Number _____ Date Effective

Review and Approval Signatures:

_____ / _____
RI Project Manager Date

_____ /
Operational Health and Safety Manager Date

_____ /
Denver Operations Manager Date

_____ /
RI Program Manager (Acting) Date

_____ /
Director - Denver Operations Date

_____ /
Manager - Health, Safety, and Security Date

Figure D-1 Field Change Form (Page 2 of 2)

3. KEY PERSONNEL ASSIGNMENTS

3.1 UNC Personnel

Director - Denver Operations	J. K. Archibald Name	FTS 326-6309 Phone ext
Manager HS&S	T. L. Best Name	FTS 326-6073 Phone ext
RF Program Manager	C. L. Jacobson Name	FTS 326-6568 Phone ext
RF Project Manager	D. L. Clayburn Name	477-2106 Phone ext
OU1-1B Field Engineer	H. C. Leighton Name	477-2106 Phone ext
Operational H&S Supervisor	D. M. Frye Name	477-2106 Phone ext
UNC OU1-1B SHSC	R. E. Murphy Name	477-2106 Phone ext

3.2 EG&G Personnel

EG&G SHSC	Name	Phone ext
EG&G H&S Liaison Officer	Larry Grocki Name	FTS 345-2190 Phone ext
EG&G ER H&S Officer	Meredith Blogden Name	FTS 345-5974 Phone ext

3 Additional Personnel (Use additional sheets as necessary)

Dennis Logsdon	Diamond Back	
Project Manager	Services, Inc.	791-1984
Name/Title	Organization/Branch	Phone ext

Role and Responsibilities

Project Manager and Superintendent responsible for subcontractor operations and sub-tier coordinator for Diamond Back Services Inc. on Operable Unit I - Phase IB

Richard M Allinder	Diamond Back	
Alternate Project Manager	Services, Inc	791-1984
Name/Title	Organization/Branch	Phone ext

Role and Responsibilities

Alternate Project Manager and Superintendent with responsiblities listed above.

Name/Title	Organization/Branch	Phone ext

Role and Responsibilities:

4. . SAFETY AND HEALTH ASSESSMENT

4.1 Task Identification

TASK NUMBER	DESCRIPTION	SCHEDULED TIME FRAME
1.0	*ERECT METAL BUILDING*	18 Jul 90 - 10 Sep 90
1.1	Erect steel frame, attach metal siding, install doors/windows, install insulation	18 Jul-14 Aug
1.2	Install interior framing	15 Aug
1.3	Excavate, form, place exterior transformer pad, place exterior transformer	15 -16 Aug 28 -29 Aug
1.4	Rough-in/finish utilities, electrical, plumbing, telephone	16 -22 Aug 29 -30 Aug
1.5	Install HVAC	23 -24 Aug
1.6	Interior finish, fixtures, drywall, paint doors, lighting	31 Aug-10 Sep
2.0	*EXTERIOR UTILITIES*	18 Jul 90 - 6 Aug 90
2.1	Excavate, install, backfill sewer & water service	18 -31 Jul
2.2	Excavate, install, backfill gas line	25 Jul-6 Aug
2.3	Excavate, install, backfill electrical service	18 -24 Jul
2.4	Excavate, install, backfill telephone service	20 -24 Jul
3.0	***INFLUENT TANKS***	1 Aug 90 - 27 Sep 90
3.1	**Excavate, form, pour, backfill tank foundations** **Cure concrete**	1 -17 Aug 17 Aug-13 Sep
3.2	Excavate, form, pour containment walls & floor Place sump plumbing	20 Aug-4 Sep 20 Aug
3.3	Place/insulate Influent Tanks	14 Sep-27 Sep
4.0	*DEMOBILIZATION* - complete "Punchlist" & site clean-up	28 Sep- 8 Oct

1.2 Chemical Hazards

1.2.1 Chemical Hazard Directly Related to Tasks

During the Phase II RI/FS, samples were taken to determine the extent of contamination from volatile and semi-volatile organics, inorganic metals, and pesticides. No statistically significant surface soil concentrations of the chemical contaminants sampled for were detected within the OU1-1B worksite (U.S. DOE 1990a).

Naturally occurring SiO_2 will present a hazard as respirable dust, carbon monoxide (CO) emissions from the heavy equipment used presents a chemical asphyxiant hazard, painting of structural surfaces will present an inhalation hazard from volatile organic propellants and solvents, and the pouring of concrete will present a hazard from dermal exposure to portland cement.

1) Crystalline silica can cause silicosis (a progressive and frequently incapacitating pneumoconiosis) evident on x-ray and in pulmonary function testing, as well as subjective respiratory complaints. Symptoms include coughing, wheezing, dyspnea (shortness of breath), and impaired pulmonary function.

2) Carbon Monoxide (CO) blocks the transportation of oxygen by the hemoglobin. The bond between carbon monoxide and hemoglobin is 20 times as strong as the bond between oxygen and hemoglobin. The amount of hemoglobin incapacitated by CO is directly proportional to the level of exposure. Cigarette smoking exacerbates the effects of CO exposure due to the presents of CO in the smoke. The acute effect of exposure is tissue oxygen deficiency (hypoxia). Symptoms of exposure are headache, dizziness, drowsiness, nausea, vomiting, collapse, coma, and death.

1) Painting can expose the workers to a wide variety of different compounds. Use of the MSDS supplied with the paint will provide information concerning the exact chemicals present. If the MSDS appears to be inaccurate, further information can be obtained from the Operational Health and Safety Supervisor.

J) Portland cement is used as a binding agent in concrete. Dermal exposure can cause dermatitis which is usually due to primary irritation from the alkaline, hygroscopic, and abrasive properties of cement. Chronic irritation of the eyes and nose have occurred. Allergic sensitivities can develop from constituents of cement such as hexavalent chromate. Cement dermatitis is usually prolonged and involves covered areas of the body. Inhalation should not be a concern due to the use of "pre-mixed" concrete.

Alluvial ground water contaminants identified in the Phase II RI/FS (U.S. DOE 1990a) will not present a worker exposure hazard due to the limited scope of the construction activities.

1.2.2 Chemical Hazards Indirectly Related to Work

"Building #885 Drum Storage Site" (SWMU Ref. #177) is currently being used for satellite collection and 90-day accumulation of RCRA regulated Waste (U.S. DOE 1990a). The SWMU is located approximately 600 feet southwest of the OU1-1B worksite. A request for information concerning what RCRA regulated wastes are temporarily stored at this SWMU, as well as the quantity, concentrations, and Emergency Response Planning associated with the wastes has been requested from LG&G. Once the information is obtained a Field Change for this HSP will be

required to address these hazards

1.3 Biological Hazards

Work will be completed on the sanitary sewer line from building #891 to an existing 4" sewer line. Raw sewage presents exposure hazards of viral infection and parasites. There is also the remote possibility of process wastes (acids and caustics) being inadvertently disposed of through the existing sewer line. All employees working at the site shall inform the UNC SHSC of any allergies or sensitivities to bees or poisonous plants, although the construction activities at OU1-16 will be conducted in an industrial area.

1.4 Radiological Hazards

Surface soil contamination of plutonium (1.82 ± 0.2 pCi/g), americium (0.15 ± 0.13 pCi/g), and uranium (^{234}U - 0.86 ± 0.26 pCi/g, ^{238}U - 0.82 ± 0.15 pCi/g) is suspected to be a result of dispersion from the 903 Pad Area (U.S. DOE 1990b).

1) Plutonium presents an inhalation hazard at high levels as documented by radiation induced pneumonitis (inflammation of the lungs), pulmonary fibrosis (abnormal formation of fibrous tissue), and pulmonary neoplasia (tumor/growth) in beagles (**Bair *et al.*, 1973**). The effects of lung deposition are greatly affected by the solubility of the plutonium compound inhaled, the effective half-life can range from hundreds of days for plutonium oxides to tens of days for the more soluble forms (Cassatt and Doull, 1986). Plutonium ingested and solubilized in the lung is transported to the liver and skeleton where it is tenaciously retained. The information available for americium indicates that it has a qualitative

similarity to the toxicity of plutonium, although it appears to be more soluble (Hodge *et al.*, 1973)

2) Uranium toxicity has been well documented due to the large exposure groups during uranium mining. Soluble forms of uranium compounds are mainly nephrotoxic (causes kidney dysfunction) as well as presenting a radiation hazard Severe exposure can cause permanent damage However, if the exposure is not severe, regeneration and repair of the kidney function will occur

Particle size analysis and solubility data must be obtained prior to an assessment of the workers potential Annual Effective Dose Equivalent (AEDE) and Committed Effective Dose Equivalent (CEDE) can be made. A request to EG&G Radiological Engineering for an estimate of the potential worker annual effective dose equivalent (AEDE) and committed dose equivalent (CEDE) from all intakes and sources has been made Until otherwise determined, all employees will be treated as "Occupational Radiation Workers" and will meet the training and monitoring requirements of DOE 5480.11, Radiation Protection for Occupational Workers.

Physical Hazard Identification

The listing below identifies the physical hazards that are present at the OUI-1B worksite and the specific task to which they are related. Where deemed applicable by the SHSC a Job Safety Analysis (JSA) using Procedure 2.20, UNC Manual 103, Environmental, Safety, and Health Procedures shall be completed and attached to this HSP

	Hazard (Y/N)	TASK No(s)
Noise	(y)	all
Heat - ambient air	(y)	all
~~- Hot Process - Steam~~	~~(n)~~	~~n/a~~
~~- Hot Process - Incin~~	~~(n)~~	~~n/a~~
~~Cold~~	~~(n)~~	~~n/a~~
~~Rain~~	~~(n)~~	~~n/a~~
~~Snow~~	~~(n)~~	~~n/a~~
Electric Storms	(y)	all
~~Confined Space Entry~~	~~(n)~~	~~n/a~~
"Hot Work" - Welding	(y)	2.2
~~cutting~~	~~(n)~~	~~n/a~~
Heavy Manual Lifting/Moving	(y)	1.1 , 1.6 , 3.1
~~Rough Terrain~~	~~(n)~~	~~n/a~~
Structural Integrity	(y)	1.1 1.2
~~Remote Area~~	~~(n)~~	~~n/a~~
~~Compressed Gases~~	~~(n)~~	~~n/a~~
~~Diving~~	~~(n)~~	~~n/a~~
~~Heavy Vehicle~~	~~(n)~~	~~n/a~~
~~Working over Water~~	~~(n)~~	~~n/a~~
~~Traffic~~	~~(n)~~	~~n/a~~
~~Explosives~~	~~(n)~~	~~n/a~~
Heavy Equipment Operation	(y)	1.3 , 2.1-2.4 , 3.1-3.2
Lift Equip Operation - Cranes	(y)	1.3
~~- Forklifts~~	~~(n)~~	~~n/a~~
Working at Elevation - Ladders	(y)	1.1 1.4 , 1.6
- Scaffolding	(y)	1.2 , 1.4 , 1.6
Excavating/Trenching	(y)	1.3 , 2.1-2.4 , 3.1-3.2
Materials Handling	(y)	all
~~Haz Mat Use/Storage flam liq/gas~~	~~(n)~~	~~n/a~~
~~-oxidizers~~	~~(n)~~	~~n/a~~
~~-corrosives~~	~~(n)~~	~~n/a~~
~~Demolition~~	~~(n)~~	~~n/a~~
Utilities - Underground	(y)	1.3 , 2.1-2.4 , 3.1-3.2
Overhead	(y)	3.3
Electrical - General	(y)	1.3 , 1.4 , 1.6 , 2.3
- High Voltage	(y)	1.5
Power Hand Tools	(y)	1.1-1.6
High Pressure Water	(y)	during decontamination

4.6 Task by Task Hazard Analysis

The preceding sections identify the hazards known or suspected to be present when accomplishing the tasks involved in this project. The following briefly describes each task and the likelihood of exposure to the hazards identified.

OMNIPRESENT HAZARDS

a) Silica - worker exposure is likely during all phases of the construction from wind blown dusts and resuspended dust from vehicular traffic. Excavation activities will also increase the presence of silica.

b) Radiological Hazards - inhalation and ingestion will be likely during all phases of work due to wind blown dusts and resuspended dusts.

c) Heat stress - heat induced illness and injury is likely during work throughout the summer months. An increased exposure hazard is likely due to the required use of personal protective equipment.

d) Noise - hazardous levels of noise can be generated by the use of heavy equipment and powered hand tools.

e) Electric Storms - Seasonal afternoon electric storms will present a hazard for workers.

Task 1.1 - Erect steel frame, attach metal siding, install doors/windows, install insulation

a) Heavy manual lifting/ moving will be a hazard while positioning pre-engineered building components

b) The structural integrity of the pre-engineered building will be a hazard until the walls and roof are completely assembled

c) Assembly of the building will require work on elevated scaffolds and ladders

d) Cranes and heavy equipment will present worker hazards. (i.e. drop, fall or crushing hazards)

Task 1.2 - Install interior framing

a) The structural integrity of the pre-engineered building will be a hazard until the walls and roof are completely assembled.

b) Assembly of the building will require work on elevated scaffolds and ladders.

Task 1.3 - Excavate, form and place exterior transformer pad, place exterior transformer.

a) Excavation will increase exposure hazard to silica and radioparticulates The operation of heavy equipment will present an exposure hazard to CO

b) Underground utilities will be a hazard during excavation.

c) Installation of the transformer may present electrical safety hazards

Task 14 - Rough-in/finish utilities, electrical, plumbing, telephone

a) Installation of these utilities will require work on elevated scaffolds and ladders

b) Installation of these utilities will present electrical safety hazards.

Task 15 - Install HVAC

a) Installation of this utility will present a high voltage electrical safety hazard

Task 16 - Interior finish, fixtures, drywall, paint doors, lighting

a) Heavy manual lifting/ moving will be a hazard while positioning drywall sheeting

b) Installation of these utilities will present electrical safety hazards.

c) Installation of these utilities will require work on elevated scaffolds and ladders

Task 21 - 24 *EXTERIOR UTILITIES*

a) Excavation will increase exposure hazard to silica and radioparticulates. The operation of heavy equipment will present an exposure hazard to CO.

b) Underground utilities will be a hazard during excavation

Overhead utilities will create a hazard due to backhoe or crane

operations

c) Installation of the sewer service will expose workers to raw sewage during hook-up to existing service line

d) Installation of the gas line may present an explosion hazard and create a welding fume hazard.

Task 3.1 and 3.2 - Excavate, form, pour and backfill tank foundations, containment walls and floor.

a) Excavation will increase exposure hazard to silica and radioparticulates. The operation of heavy equipment will present an exposure hazard to CO.

b) Underground utilities will be a hazard during excavation
Overhead utilities will create a hazard due to backhoe or crane operations

c) Pouring concrete will expose workers to the dermal hazards of portland cement.

Task 3.3 - Place/insulate Influent Tanks.

a) Heavy manual lifting/ moving will be a hazard while positioning influent tanks.

5. TRAINING ASSIGNMENTS

5.1 Confidential Employee Training and Medical Certification File

The SHSC shall initiate a Confidential Employee Training and Medical Certification File for maintaining training records and medical surveillance records for each employee. This file will be kept at the worksite to allow ready access of the information for the employees and any auditors. Copies of the following records, associated with training, will be maintained in this file:

1) Worker/Supervisor Training Checklist (Form D-2)

2) Initial/Refresher Off-site Training Certificate

3) Initial/Refresher Supervisor Off-site Training Certificate

4) Supervised Field Experience Record of Training Attendance (ROTA)

5) Radiation Worker Training ROTA

6) Site-specific Training ROTA

7) Hazards Communication Training ROTA

5.2 Specification of Individual Training Requirements

Instructions to the SHSC

1) Complete a job description in Figure D-2, Worker/supervisor Training Checklist, for each employee that will work at the worksite

2) Obtain the OHS Supervisor's determination of the training requirements for the employee.

3) Inform the employee of the training requirements to be met. Schedule or have employee schedule attendance at the necessary training classes with the Radiological and Environmental Safety Training Representative

4) Access to the controlled areas of the worksite shall not be granted to any employee who has not completed and documented the training requirements on the checklist

WORKER/SUPERVISOR TRAINING CHECKLIST

EMPLOYEE NAME _____ TITLE _____ SSN _____

Briefly describe the worker/supervisor job description and responsibilities

_____

_____

_____

_____

Based on the above job description this employee will require

10 / 21 _____ hours of off-site initial instruction

3 / 1 _____ day(s) of on-site "OJT"

will/will not _____ require 8 hours of supervisory training

_____/_____
OHS Supervisor Date

Annotate date of documented completion and attach copies of documentation

Initial Off-Site Training	_____/_____	
	SHSC	Date
Supervisory Off-Site Training	_____/_____	
	SHSC	Date
Supervised Field Experience (OJT)	_____/_____	
	SHSC	Date
Radiation Worker Training	_____/_____	
	SHSC	Date
Site-Specific Training	_____/_____	
	SHSC	Date
Hazard Communication Training	_____/_____	
	SHSC	Date

Figure D-2 Worker/Supervisor Training Checklist

6. PERSONAL PROTECTIVE EQUIPMENT

6.1 Selection of Ensembles and Equipment

TASK # 11-12 13-16, 33

Engineering Controls

a) The proper lifting techniques will be followed at all times.

b) Ladders and Scaffolding used will meeting the requirements of 29 CRI 1926 Subpart L.

c) The electrical safety requirements of 29 CFR 1926 Subpart K, and UNC Manual 103, Environmental, Safety, and Health Procedures Manual, Chapter 211 will be met. Electrical service for tools shall contain a ground-fault-interrupt, or the tool shall be double insulated.

d) Adequate ventilation shall be used to prevent an accumulation of paint fumes within the pre-engineered building

e) Hoisting and Rigging Operations shall conform to requirements of the DOL Hoisting and Rigging Manual

Action Levels for Changing Levels of Protection

a) Respirable dust measured in the worker breathing zone ≥ 0.05 mg/m^3.

b) Radioparticulates measured in the worker breathing zone ≥ 10% DAC.

c) Detection of any organic vapors or explosive gases in the worker breathing zone.

d) Detection of ambient noise levels ≥ 90 dB(A)

Description of PPE Level required:

These tasks represent a very remote probability of dermal or inhalation hazard for the workers. Adequate protection will be obtained using Level D ensembles.

TASK # 11-12, 11-16 3.3

Ensemble Components

Route of Exposure	Protection Required?	Protection Provided By the Following
Respiratory System	NO	N/A
Head	Yes	Hard hat meeting the standard of ANSI Z89.1-1986
Eyes	OPTIONAL*	Safety glasses/goggles meeting the standards of Z87.1-1979 Side sheilds are required
Ears	OPTIONAL*	Hearing protection providing a sufficient NRR
Face	YES	Face shield provided during welding operations
Hands	YES	Cotton or leather gloves will be worn at all times
Arms	NO	N/A
Trunk	YES	Cotton Coveralls with long sleeves.
Legs	**NO**	N/A
Feet	**YES**	Safety shoes meeting the standards of ANSI Z41.1-1967
Other	OPTIONAL*	Neoprene overshoes shall be worn when wet/muddy conditions exist.

*Use to be determined on case by case basis by the UNC SHSC.

Engineering Controls.

a) Dust suppression measures shall be used to prevent any visible emissions from the excavations

b) All excavation routes will be checked for buried utilities prior to commencing the excavation

c) All excavations shall be shored or sloped and inspected to meet the standards of 29 CFR 1926 Subpart P

d) The use of the existing sewer line shall be secured prior to making the connection with the new service

Action Levels for Changing Levels of Protection

a) Respirable dust measured in the worker breathing zone ≥ 0.05 mg/m^3.

b) Radioparticulates measured in the worker breathing zone ≥ 10% DAC.

c) Carbon Monoxide measured in the worker breathing zone ≥ 15 ppm.

d) Detection of any organic vapors or explosive gases in the worker breathing zone.

e) Detection of ambient noise levels ≥ 90 dB(A).

Description of PPE Level required

These tasks represent a minimal probability for dermal exposure and a very remote probability of inhalation exposure for the workers. Adequate protection will be obtained using Modified Level D ensembles.

TASK # 1 3 2 1-2.1 3.1-3 2

Ensemble Components

Route of Exposure	Protection Required?	Protection Provided By the Following
Respiratory System	NO	N/A
Head	Yes	Hard hat meeting the standard of ANSI Z89 1-1986
Eyes	OPTIONAL	Safety glasses/goggles meeting the standards of Z87 1-1979
Ears	OPTIONAL	Hearing protection providing a sufficient NRR
Face	NO	N/A
Hands	YES	Latex gloves will be worn at all times, joints between sleeve and glove shall be taped
Arms	NO	N/A
Trunk	YES	Impermeable hooded Tyveks during wet weather conditions and permeable Tyveks during all others conditions.
Legs	NO	N/A
Feet	YES	Safety shoes meeting the standards of ANSI Z41 1-1967
Other	OPTIONAL	Neoprene boots shall be worn at all times. Joint at boot will bet taped when wet/muddy conditions exist.

7. MEDICAL SURVEILLANCE

7.1 Required Information

The Medical Department requires some specific information to be supplied to meet the regulatory standards of 29 CFR 1910.120 and DOE Order 5180.8, and UNC Manual 10J, Environmental, Safety, and Health Manual, Chapter 10.

The SHSC shall complete Figure D-4, Medical Surveillance Information Sheet for all employees at the worksite and maintain UNC Form 1733, Hazardous Materials Access Log, to provide the required information for baseline, periodic, and termination physicals.

Record-keeping

The SHSC shall retain a copy of the completed Figure D-3 for each employee in the Confidential Employee Training and Medical Certification File at the worksite. The Occupational Medical Department will maintain the original Figure D-3 and completed Form 1733s, along with the exposure data gathered during area sampling and personnel monitoring. These records must be accessible to the employee for review

Quality Coordinator

The Quality Coordinator (QC) is assigned to the project by the RP Manager and reports to the RP Manager. The QC

- Is responsible for incorporating quality, inspection, and records requirements into EG&G internal Phase 1B project related plans, procedures and instructions which affect quality
- Is responsible for performing surveillance activities of the work being performed
- Is responsible for recommending corrective action on matters requiring corrective action resolution
- Is responsible for ensuring that quality records of the project are forwarded to the Records file
- Is responsible for reporting issues involving matters adverse to quality to the RP Division Manager
- Is responsible for compiling a final Phase 1B Project Quality report to be submitted to the RP Division Manager, the ER Department Director, the ER Department QAO, and the Records file upon completion of the project
- Shall coordinate quality matters with the ER Department QAO

5.0 PROJECT QUALITY ASSURANCE LEVEL

The level of quality incorporated into this QA Project Plan has taken into consideration the potential for environmental releases, public visibility, potential regulatory concerns, and DOE Orders

6.0 PROJECT QUALITY ASSURANCE REQUIREMENTS

Criterion 1, Quality Assurance Program

The development of the QA functions outlined in this QA Project Plan have been developed under the general guidance of DOE RFP SOP 5700 6b, pending finalization of the ER Department Quality Assurance Program Plan (QAPP)

EG&G Work Procedures, the Project Management Plan, Standard Operating Procedures, and site-specific Health and Safety Plan will also govern this work

The Response Action Contractor will submit their QAPjP and associated QA instructions for this work to the QAO for approval

Criterion 2, Organization

Personnel or organizations will ensure that their assigned work is in accordance with established instructions, procedures, and drawings The project organization is identified in Section 4 0

Criterion 3, Design Control

The design for this project has been provided by EG&G When required changes to the design are identified, the information will be forwarded to EG&G for transmittal to the responsible design organization EG&G will be responsible for the control of the design, including changes EG&G will be responsible for assuring that current and correct design documents and changes are provided

Criterion 4. Procurement Document Control

Procurement packages for subcontracted services are to be provided to the QAO for review prior to issuance for bid QA reviews will be performed by the QAO or designee

Construction materials and items are considered to be "commercial grade" and will be procured as identified in the construction specifications

Criterion 5. Instructions, Procedures, and Drawings

All construction procedures, instructions, specifications (which reference other documents not contained in the package), and drawings are contained in the construction design documents for the IRA 881 Hillside Phase 1-B construction.

Criterion 6. Document Control

EG&G will be responsible for the distribution of design documents (drawings, specifications, changes, etc) to the contractor in accordance with Facility Engineering and Project Management Manual

Criterion 7. Control of Purchased Items and Services

The EG&G Construction Coordinator is responsible for monitoring Response Action Contractor compliance to the EG&G-provided design documents and RFP requirements

Acceptance of Response Action Contractor work will be based on daily monitoring, review of submitted documentation, and the results of construction testing QA

surveillances will be performed to verify compliance with the documents governing 881 Hillside Phase 1-B Construction.

Government Furnished Equipment (GFE) will be provided to the Response Action Contractor for installation Records of inspection, including supporting documentation, such as material certifications, test reports, etc, will be maintained by EG&G

Criterion 8, Identification and Control of Items and Samples

The identification of GFE will be provided by EG&G. Identification of construction test samples will be performed by the testing laboratory provided by EG&G The Response Action Contractor will assist in maintaining identification tags or markings

Criterion 9, Control of Processes

This construction activity does not involve the use of special processes and is therefore not applicable to this work

Criterion 10, Inspection and Surveillances

Routine oversight and monitoring of work will be performed by the EG&G Project Manager Where appropriate, acceptance testing will be requested through EG&G's testing services QA surveillances of work will be the responsibility of the EG&G QAO The Response Action Contractor will also perform verification activities and will coordinate with the 881 Hillside Project Manager

Criterion 11, Test Control

Tests performed on construction and construction materials will be performed by the EG&G-provided testing services. Since these test results will in part verify the quality of the work attained, the EG&G QAO is responsible for performing surveillance of the testing services to ascertain the quality of the testing, qualifications of personnel, and compliance to specific test procedures

The Response Action Contractor may perform surveillances of the testing services to ascertain the quality of the testing, qualifications of personnel, and compliance to specific test procedures When test procedures vary from recognized national standards, the contractor will review the procedures for adequacy

Criterion 12, Control of Measuring and Test Equipment

Test equipment used by the ER Department and the Response Action Contractor will be required to be calibrated Calibration of the equipment will be verified by EMAD during the work progress and will be entered into the appropriate records.

Criterion 13, Handling, Shipping, and Storage

When hoisting or other special handling or lifting is required, the Response Action Contractor will be required to utilize equipment that is adequate, tested, and operated by experienced and trained operators This equipment must be inspected by the HSC prior to first use

Actions will be taken by the Response Action Contractor to protect equipment, including GFE, from damage due to handling, environmental, or other effects Markings will be

maintained The activities will be performed in accordance with the EG&G Construction Management Manual

Criterion 14. Inspection and Test Status

Inspection status tagging placed by other organizations on equipment, such as GFE, will be maintained and protected

Criterion 15. Control of Nonconformances

Nonconforming items will be segregated or otherwise marked to indicate the status Nonconformances in the Project Log or other forms or documents will be circled in red ink Nonconformances will be reported by completing a Nonconformance Report (NCR) (Figure 3)

Nonconformances affecting design will be forwarded to the responsible design organization through the EG&G Project Manager and Project Engineer for disposition and concurrence. The EG&G QAO will verify completion of the corrective actions and make distribution of completed NCRs

Criterion 16. Corrective Action

Corrective Action procedures will be instituted to correct nonconformance with quality control procedures or objectives The necessity for corrective action can be identified by noting any deficiencies during the course of project activities The Response Action

Figure 3

NONCONFORMANCE REPORT

EG&G ROCKY FLATS

NCR No _____ DATE _____
QAL _____ PAGE _____ OF _____
AUTH # _____ BLDG # _____
PROJ NCR No _____ P O # _____

PROJECT _____
RESPONSIBLE DEPARTMENT _____
ITEM _____ QUANITY _____
SPECIFICATION REFERENCE _____
NONCONFORMANCE DESCRIPTION _____

ISSUED BY _____ DATE _____
Name Title Organenization

MANAGER CONST MGMT & INSPECTION _____ DATE _____

PRELIMINARY DISTRIBUTION
☐ BLDG. MGR. ☐ MANAGER FE ☐ PROJ. ENGR. ☐ MANAGER MTCE ☐ CM&I MASTER FILE ☐ SEISMIC QUAL.
☐ HS&E AREA ENGR. ☐ CONSTRUCTION COORDINATOR ☐ CONTRACTOR ☐ PURCHASING ☐ FIRE PROT ENGR. ☐ OTHER

DISPOSITION ☐ USE-AS-IS ☐ REPAIR ☐ REWORK ☐ REJECT ☐ AS-BUILT REQUIRED

DISPOSITION APPROVALS

PROJECT ENG. _____ DATE _____ DESIGN CHECKER _____ DATE _____
HS&E AREA ENGR. _____ DATE _____ USER _____ DATE _____
PURCHASING (IF APPL.) _____ DATE _____ FIRE PROT ENGR. _____ DATE _____
SEISMIC QUAL. _____ DATE _____ FQA _____ DATE _____

INTERIM DISTR. ☐ MANAGER MTCE. ☐ PURCHASING ☐ PROJ. ADMIN. ☐ OTHER
☐ CONSTR. COORD. ☐ CM&I MASTER FILE ☐ CONTRACTOR ☐ APPROVERS

RF-46386 (Rev 1/88) CMIC-21a

Contractor will notify the Project Manager or Construction Coordinator of any situation adverse to quality and corrective actions taken The essential steps in executing a corrective action are outlined below

- Identify and define the problem.
- Assign responsibility for investigating the problem.
- Investigate and determine the cause of the problem
- Nonconformance reports
- Determine corrective action to be taken to eliminate the problem
- Assign responsibility for implementing the corrective action
- Implement the corrective action and document what was done
- Verify that the corrective action taken has effectively solved the problem

Documentation of the problem is important to the overall management of the project A Corrective Action Report form for problems associated with project activities, Figure 4, may be initiated by any project participant This form identifies the problem, establishes possible causes, and designates the organization responsible for taking corrective action The RP Division Manager, or his designee, is responsible for ensuring that Corrective Action Reports are developed for identified problems and that the reports are closed out

Figure 4

ER DEPARTMENT CORRECTIVE ACTION REPORT

	Type Field ☐ Laboratory ☐	Corrective Action Report Number _____ Audit Date _____ Deviation (finding/ observation) _____
Organization _____ Location _____ Operation _____		
Requirement (procedure reference) _____		
Deviation _____		
Quality Assurance Evaluator: _____ Date _____		
Response to Request for Corrective Action		
Deviation Cause _____		
Corrective Action Taken: _____		
Action Taken to Prevent Deviance Recurrence _____		
Date Corrective Action Completed: _____		
Corrective Action Verification: _____ Signature of Evaluator _____ Date _____		

Corrective Action Closed by (ER Program QA Officer) _____ Date: _____

The Corrective Action Report form includes a description of the corrective action planned and has space for follow-up comments The QAO, or his designee, will verify that the action taken appears effective and then will verify that the problem has been effectively resolved The QAO will review all Corrective Action Report forms and will enter them into a Corrective Action Log This permanent record will aid in follow-up and will make any QA problems visible to the RP Division Manager and 881 Hillside Project Manager

Criterion 17, Records

The Response Action Contractor will be required to package and submit records of their work activities to the RP Project Manager The RP Project Manager will then forward the documents to the QA Records file Documents from both contractors and EG&G, describing work and quality activities for this project, will be retained and controlled in the QA Records File An additional copy of the records will be maintained at a separate location from the QA Records File A records control function is in place to ensure that documents demonstrating objective quality evidence are maintained and retrievable

The documents which are retained in the QA Records file include but are not limited to

- QA Project Plans
- Field QA Surveillance Reports
- Field, laboratory, and data validation procedures
- Corrective Action Reports

- Data Validation Reports
- Correspondence related to quality assurance activities
- Response Action contractor QA documents
- Health and Safety documentation
- Audit reports

Criterion 18. Audits

Due to the importance and short duration of this project, a focus will be placed on QA surveillance of work Following completion of the work, the records of the work and of quality activities will be audited to ensure that comprehensive records have been collected and maintained

CONSTRUCTION WORK PROCEDURES

for the

INTERIM REMEDIAL ACTION

OPERABLE UNIT 1

881 HILLSIDE, PHASE 1-B, Rocky Flats Plant

Construction

856D0028 001

CONSTRUCTION WORK PROCEDURES
for the
INTERIM REMEDIAL ACTION
OPERABLE UNIT 1
881 HILLSIDE, PHASE 1-B, Rocky Flats Plant
Construction

These work procedures identify and document the applicable work activity controls that apply to the Rocky Flats Plant Interim Remedial Action for the 881 Hillside, Phase 1-B

Approvals

J. E. Evered, Director
Environmental Restoration — Date 9/28/90

J. R. Majestic, Director
Health and Safety — Date 9/28/90

J. Kirkebo
Chief Engineer — Date 9/28/90

T. C. Greengard, Manager
Remediation Programs — Date 9/28/90

J. P. Koffer, P.E.
Project Manager — Date 9/28/90

L. L. McInroy, QA Officer — Date 9/28/90

ROCKY FLATS PLANT
ENVIRONMENTAL RESTORATION PROGRAM

881 Hillside Phase IB
Construction Work Procedures

Approvals

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C A Broom,
UNC Geotech Manager, Denver Regional Office

C L. Jacobson,
UNC Geotech Program Manager (Acting)

D L Clayburn,
UNC Geotech Project Manager

D M Drye,
UNC Geotech Denver Operations
Operational Health & Safety Supervisor

Revision _____
Date:_____

ROCKY FLATS PLANT
ENVIRONMENTAL RESTORATION PROGRAM

881 Hillside Restoration Phase IB
Construction Work Procedures

Prerequisites

1) All construction personnel must have completed 40 hour OSHA (SARA) training, 24 hours OJT, 8 hour supervisor training (for supervisors only) and any required updates In addition to this, all personnel must have a baseline physical complying with 29 CFR 1910 120 All training and medical requirements are to be complied with as outlined in the Geotech Site Specific Health and Safety Plan

2) Wind speed must be below 15 mph for earth moving (or other dust generating) operations to proceed Refer to Wind Speed Shut Down Criteria in project documents file All soils shall have moisture content verified to be over 15% before any earth moving activities can take place Also, airborne dust concentrations shall be measured as deemed necessary by EG&G Project Management during operations Soil moisture content and airborne dust concentrations shall be verified under the EG&G Project Manager's direction

3) Daily safety and plan-of-the-day meetings will be held with the EG&G Construction Coordinator, EG&G ER Project Manager and Geotech Project Management

4) Hi-Vol air samplers must be operational and checked before general construction work can continue Samplers must be calibrated and deemed operational by the Environmental Monitoring and Assessment/Air Monitoring group of the EG&G Environmental Restoration Department Samples will be collected twice monthly

5) Lo-Vol air samplers must be operational and checked before construction work can begin These samplers will be calibrated and deemed operational by the Geotech Senior Health and Safety Technician Lo-Vol stationary samples shall be collected daily until area has been characterized with the approval of the Geotech OH&S Manager Lo-Vol personnel samples shall be collected continuously during excavation activities or during exterior labor activities

6) The subcontractor shall be appraised of his liability under the Inter-Agency Agreement

Required Personnel for This Phase of Construction

Subcontractor
construction foreman
electrician and helper
carpenters
heavy equipment operator
concrete workers
drywall workers
plumber and helper

Response Action (RA) Contractor
Senior Field Engineer
Senior Health and Safety Technician

ROCKY FLATS PLANT
ENVIRONMENTAL RESTORATION PROGRAM

Required Materials for This Phase of Construction

- electrical supplies
- lumber
- concrete forms
- HVAC supplies
- concrete
- telephone service supplies
- plumbing supplies
- insulation materials

Required Documents for This Phase of Construction

- weekly work permit
- excavation permit(s)
- subcontractor's Health & Safety Plan
- RA contractor approved construction schedule
- OSHA and orientation training records
- records of physical examination and respirator examination
- RA contractor's Health & Safety Plan
- welding permits

Required Safety Equipment for This Phase of Construction

- hard hats
- safety shoes or protectors
- electrical safety gear
- safety belts for high work
- eye/ear/ protection by subcontractor (as needed)
- PPE by L\C Geotech (as needed)

RA Contractor Equipment

- organic vapor meter with assorted calibration tubes
- 4-gas monitor (O_2/H_2S/CO/comb)
- Lo-Vol/Hi-Vol air samplers (personnel and stationary)
- air sample scaler counter
- portable radiation monitoring equipment
- explosivity indicator/alarm
- digital dosimetry
- radiologic metering source calibration set

ROCKY FLATS PLANT
ENVIRONMENTAL RESTORATION PROGRAM

Work Procedures

Work Procedure Description	Reference Document	Prerequisites and Cautions
EG&G and UNC Geotech		
_____1) UNC personnel set up Hi-Vol and Lo-Vol samplers as required EG&G sets up wind anemometers		Hi- and Lo-Vol samplers must be operational and calibrated before any construction work can start
_____2) EG&G and UNC personnel monitor respective systems, report operations		Anemometers to be placed as close to construction as possible without interference
Diamond Back Services		
_____3) Erect metal building	881 Hillside Phase IB construction specifications section 03601 non-shrink grout, section 05500 structural and miscellaneous metals, section 05400 light gage framing, section 07201 metal building insulation, section 07900 caulking and sealants, section 07901 pipe penetrations, section 13121 pre-engineered building, Flats Plant Standards SM-105	Health & Safety Plans approved by UNC OHS Manager prior to start All personnel must have 40-hr SARA training and respirator fit All lifting and rigging equipment inspected and lift-tested per DOE/Rocky Flats Standards and Regulations All necessary welder's documentation and permits to be in place prior to start
_____4) Install interior framing, metal building _____5) Install transformer pad/transformer, exterior _____6) Rough in/finish utilities (tags & labels), metal building _____7) Install HVAC, metal building _____8) Interior finish and fixtures, metal building	881 Hillside Phase IB construction specifications section 03100 concrete formwork, section 03200 concrete reinforcement, section 03300 cast-in-place concrete, section 05400 lightgage framing, section 08100 hollow metal doors and frames, section 08700 hardware and specialties, section 09250 gypsum drywall, section 09650 resilient flooring, section 09900 painting, section 15400 plumbing, section 15800 15800 air distribution, section 15900 automatic temperature control, all sections of Division 16 Electrical, DWGS 38548-202, -305, -505, -506, -706, -707, -709, -710, Rocky Flats Plant Standards SE-63, SE-104, SE-107, SE-112, SP-220, SP-303	Avoid concrete burns by wearing proper PPE Non-conducting hard hats must be worn by electrical workers Observe proper lockout procedures Maintain adequate ventilation during painting operations

____9) Excavate/install/backfill sewer and water service ____10) Backfill compaction testing by ATEC	881 Hillside Phase IB construction specifications section 02200 earthwork, section 02551 sanitary sewers, section 02553 water lines, DWG 38548-124, Rocky Flats Plant Standards SP-220, SP-303	Ensure excavation permit is signed and in place Have shoring materials and standards available per DOE/OSHA shoring requirements Heavy equipment traffic dangers to be posted Have warning tape for buried lines available for installation
____11) Excavate/install/backfill gas line ____12) Backfill compaction testing by ATEC	881 Hillside Phase IB construction specifications section 02200 earthwork, section 02552 natural gas lines, DWG 38548-125, Rocky Flats Plant Standards SE-103,SE-104, SE-107, SE-112	Excavation permit signed and in place Have shoring materials available per DOE/OSHA shoring requirements Heavy equipment traffic dangers are to be posted Have warning tape for buried lines available for installation
____13) Excavate/install/backfill electrical service ____14) Backfill compaction testing by ATEC	881 Hillside Phase IB construction specifications section 02200 earthwork, Division 16 Electrical, DWG 38548-707, -708, Rocky Flats Plant Standards SE-103, SE-104, SE-107, SE-112	Excavation permit signed and in place Non-conducting hard hats must be worn by electrical workers Have warning tape for buried lines available for installation
____15) Excavate/install/backfill telephone service ____16) Backfill compaction testing by ATEC	881 Hillside Phase IB construction specifications section 16780 telephone system site preparation, DWG 38548-125, Rocky Flats Plant Standard SE-550	Excavation permit signed and in place Non-conducting hard hats must be worn by electrical workers Have warning tape for buried lines available for installation
____17) Excavate/form/pour Influent tank foundations ____18) Excavate/form/pour containment walls and floors ____19) Backfill compaction testing and concrete sampling by ATEC ____20) Place/insulate four influent tanks	881 Hillside Phase IB construction specifications section 02200 earthwork, section 03100 concrete formwork, section 03200 concrete reinforcement , section 03300 cast-in-place concrete, section 03601 non-shrink grout, section 15175 influent tanks, section 15180 pipe and influent tank insulation, DWGs 38548-303, 305	Excavation permit signed and in place Avoid concrete burns by wearing proper PPE All lifting and rigging equipment tested and certified by proper authority
____21) Punchlist, site clean-up, demobilization ____22) Project closeout	881 Hillside Phase IB construction specifications section 01600 Material Handling and Control	Final close-out checklist must be completed

QUALITY ASSURANCE PROJECT PLAN

for the

INTERIM REMEDIAL ACTION

OPERABLE UNIT 1

881 HILLSIDE, PHASE 1-B

Construction

ENVIRONMENTAL RESTORATION PROGRAM

ROCKY FLATS PLANT

GOLDEN, COLORADO

856D0037 001

QUALITY ASSURANCE PROJECT PLAN
for the
INTERIM REMEDIAL ACTION
OPERABLE UNIT 1
881 HILLSIDE, PHASE 1-B, Rocky Flats Plant
Construction

POLICY

This Quality Assurance Project Plan identifies and documents the applicable Quality Assurance Controls that apply to the Rocky Flats Plant Interim Remedial Action for the 881 Hillside, Phase 1-B Work performed on this project will be in accordance with the controls contained herein

Approvals

J E Evered, Director
Environmental Restoration — 9/28/90 Date

J R Majestic, Director
Health and Safety — 9/28/90 Date

John Kirkebo, Chief Engineer — 9/28/90 Date

Tom Greengard, Manager
Remediation Programs — 9/28/90 Date

J P Koffer, Project Manager — 9/28/90 Date

L. L. McInroy, QA Officer — 9/28/90 Date

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FIGURES

1.0 INTRODUCTION

The purpose of this Quality Assurance Project Plan (QA Project Plan) is to identify the QA Controls that are applicable to the Rocky Flats Plant (RFP) Interim Remedial Action (IRA), 881 Hillside, Phase 1-B Statement of Work

2.0 SCOPE OF APPLICATION

This QA Project Plan is applicable to the RFP IRA, 881 Hillside, Phase 1-B activities This work is governed by the construction specifications and generally includes the following tasks

- Erection of a pre-engineered building (#891) on an existing foundation
- Construction of influent tank foundations and containment
- Installation of the influent tanks
- Construction and installation of water, sewer, natural gas, electrical, and telephone service to the 891 building
- Installation of building HVAC, electrical equipment
- Interior construction, including offices, utility rooms, etc

Construction work will be performed by the Response Action Contractor, UNC Geotech

Major items of engineered equipment will be Government Furnished Equipment (GFE) These include the influent tanks, transformer, pre-engineered building, and other miscellaneous items

3.0 REVISIONS

This QA Project Plan is maintained and issued by the EG&G Remediation Programs (RP) Quality Coordinator for the Rocky Flats ER Program It will be revised as required to meet the needs of the project Revisions will require approvals at the same level as the initial issue

4.0 IMPLEMENTING ORGANIZATIONS

This section describes the role of EG&G RFP personnel and personnel from the Response Action Contractor for the 881 Hillside Operable Unit 1, Phase 1-B construction activities

Quality Assurance and management organization and responsibilities are illustrated in Figure 1 EG&G RFP personnel or their designee will provide the primary project management and QA oversight The Response Action Contractor will be responsible for internal Quality Assurance and Control and construction activities

4.1 RESPONSIBILITIES OF KEY PARTICIPANTS

The overall management responsibility and the key personnel for the work governed by this QA Project Plan are illustrated in Figure 1 This organization includes ER functions as well as Engineering and Project support functions Figure 2 illustrates staff responsibilities for carrying out specific tasks associated with the project This includes the Project Manager, Construction Coordinator, Health and Safety Coordinator (HSC), Project Engineer, and QAO

The duties of all key personnel associated with this project are presented in this section All key personnel are listed in Figure 1 of this section

Environmental Restoration Department Director

The ER Department Director is responsible for the overall direction of the Environmental Restoration, Environmental Monitoring and Assessment, Clean Water,

Figure 1

Rocky Flats Organization

Involved with 881 Hillside Restoration

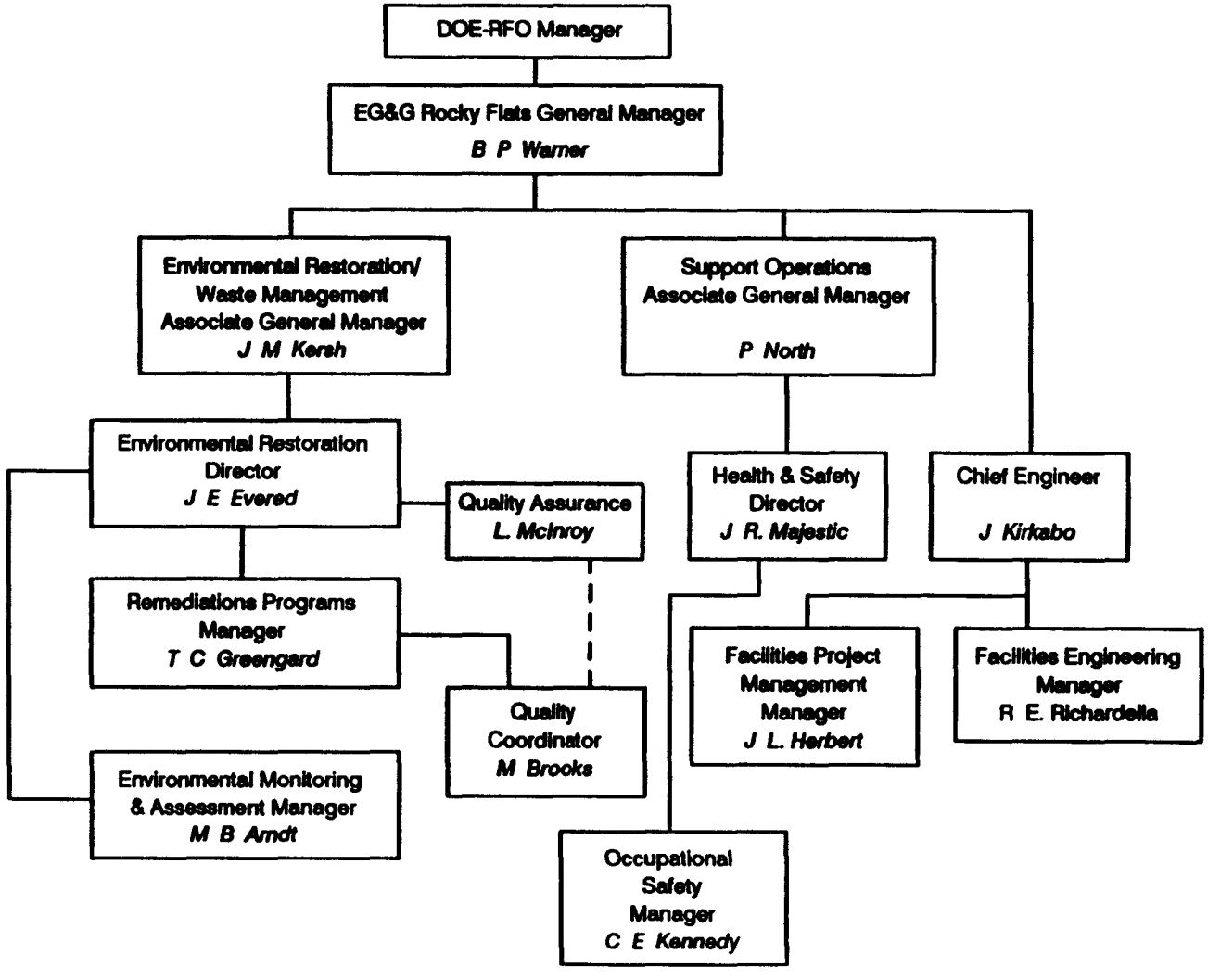
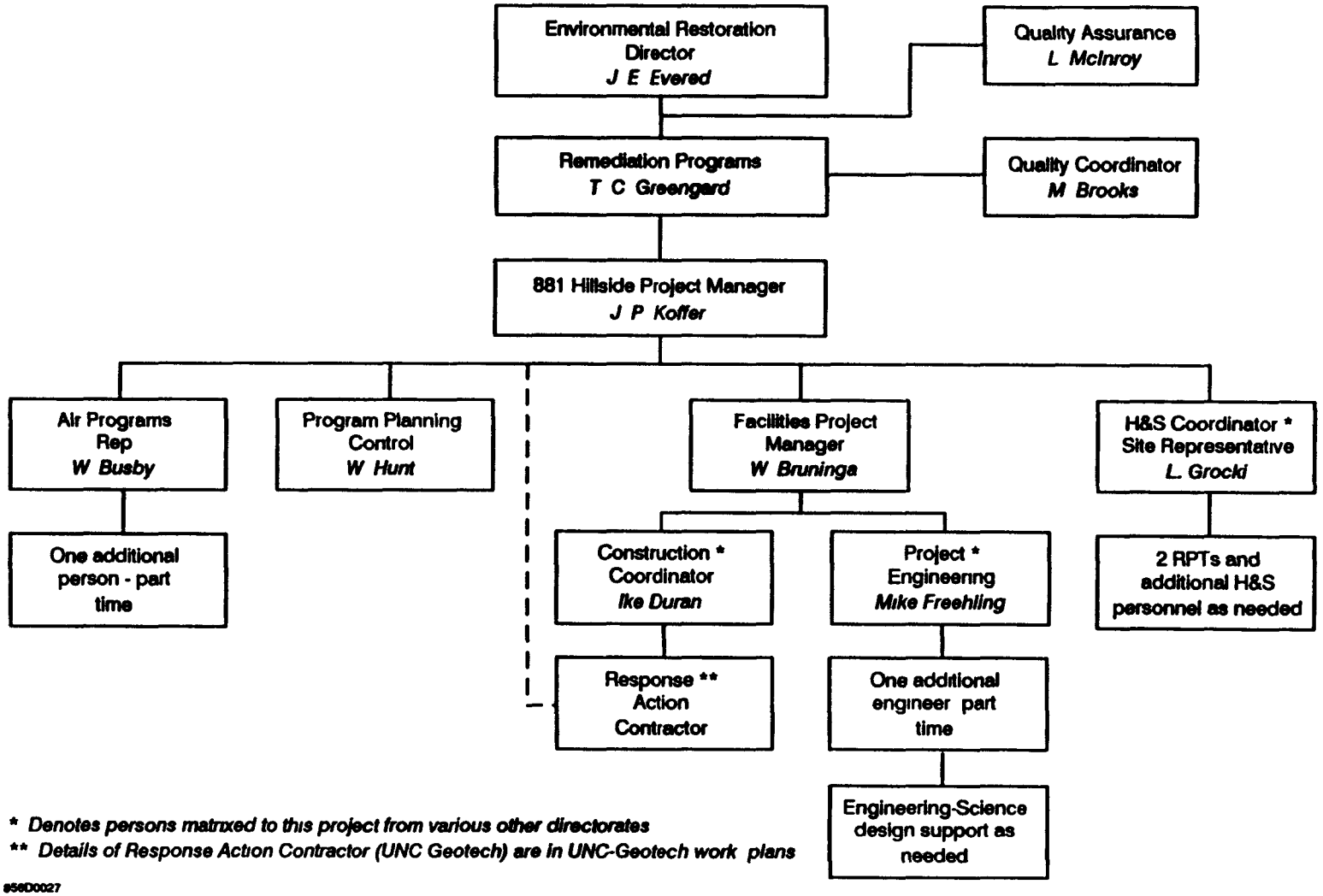


Figure 2

Management System

881 Hillside IRA - Phase 1B



Clean Air, and NEPA functions of the ER Department The ER QAO reports directly to the ER Department Director

Remediation Programs Division Manager

The RP Division Manager is responsible for implementing RP-related construction activities, QA project plans, corrective actions as necessary and for providing overall direction and guidance to the Project Manager

881 Hillside Project Manager

The Project Manager is assigned from the EG&G RP Division and reports to the RP Division Manager The Project Manager is responsible for project activities, monitoring health and safety documents and communicating project requirements, including any modifications of the project scope to the support organizations Support groups include Facilities Project Management, Environmental Monitoring and Assessment, Remediation Programs, Facilities Engineering, Health and Safety, and the Response Action Contractor The Project Manager will also monitor project progress, budget, performance, compliance to H&S issues, and serve as liaison with DOE-RFO, EPA, and CDH, and will have stop work authority for the project The work will be performed under the day-to-day oversight of the EG&G 881 Hillside Project Manager according to the project schedule All work will be performed under applicable health and safety requirements and in compliance with the 881 Phase 1-B Health and Safety Plan The Project Manager shall have soil-moisture testing done daily when work is performed outdoors to ensure adequate soil moisture exists to prevent dust resuspension and on days of earth moving (or other dust generating activities) have dust level concentrations checked during operation Also, the Project Manager shall assure that construction site

Hi-Vol air samplers are functional prior to commencing earth moving activities and for informing the air-programs representative when the samples are not functioning

Construction Coordinator

The Construction Coordinator is assigned to the project by Facilities Project Management and reports to the Facilities Project Manager The Construction Coordinator is responsible for implementing all construction-related project activities including overseeing the construction, ensuring compliance with construction requirements, and ordering construction QC tests All construction activities will be conducted in accordance with EG&G-provided contract specifications and engineering drawings, Statements of Work, and the contractors' QAPjP The Construction Coordinator is responsible for monitoring resolution of any corrective action taken The Construction Coordinator is responsible for monitoring contractor compliance to H&S requirements, tracking construction activities through observations, and reporting test measurement The Construction Coordinator is responsible for notifying the Project Manager, Contract Administrator, QAO, and Project Engineer of any conditions that may adversely impact the quality of project activities The Construction Coordinator has stop work authority if project construction, Health and Safety, or quality criteria are not met

In addition, the Construction Coordinator shall determine if the soil is moist enough to prevent dust generation and, if necessary, require the construction contractor to wet down the area before any additional work is done He will also determine if the soil is too moist for construction to continue and stop work if required The Construction Coordinator shall also monitor the site anemometer and stop work according to wind speed shutdown criteria

Health and Safety Site Coordinator

The Health and Safety Coordinator (HSC) is assigned to the project by the Health and Safety Department and reports to the Project Manager The HSC is responsible for coordinating all health and safety-related activities of the project, including securing the services, as necessary, of health physicists, industrial hygienists, Radiation Protection Technicians (RPTs), and safety engineers The HSC will monitor requirements as provided in the Health and Safety Plan. The HSC ensures that radiologic and industrial hygiene measurements are taken, monitors construction activities for personnel protection and industrial safety considerations, conducts health and safety work site inspections, documents health and safety audits, reviews all health- and safety-related submittals prior to issuance, and has stop work authority for all safety-related criteria

Project Engineer

The Project Engineer is assigned to the project by Facilities Engineering and reports to the Facilities Project Manager The Project Engineer is responsible for supporting the procurement of services of an engineering design firm, preparing engineering design plans and construction specifications (completed for Phase 1-B) oversight of the engineering design firm, preparing and reviewing field change orders and any associated plans and specifications as directed by the Project Manager, and preparing as-built construction drawings Refer to Facilities Engineering and Project Management Manual for a complete narrative of responsibilities other than those listed above.

Air Programs Representative

The Air Programs Representative is assigned to the project by Environmental Monitoring and Assessment The Air Programs group monitors meteorology and air quality for the ER Department. The Air Programs Representative is responsible for operation of hi-volume air samplers and meteorological monitors Once air monitoring samples have been analyzed and reduced, they will be reported immediately to the project manager Wind conditions will be reported to the project manager, construction coordinator, and the HSC as specified in the work procedures

Quality Assurance Officer

The Quality Assurance Officer (QAO) is assigned to the project by the ER Department Director and reports to the ER Department Director The QAO

- Is responsible for approving this QAPjP and other internal project related plans, procedures and instructions which affect quality
- Is responsible for the review of and tracking of matters involving nonconformances and those requiring corrective action
- Is responsible for the approval of nonconformance and corrective action resolution
- Is responsible for the approval of the Response Action Contractors QA plans and procedures
- Is responsible for supporting the RP Divisions Quality Coordinator as appropriate
- Is responsible for reporting issues involving matters adverse to quality to the ER Department Manager.
- Has stop work authority in matters adverse to quality.

MEDICAL SURVEILLANCE INFORMATION SHEET

EMPLOYEE NAME _____ TITLE _____ SSN _____

Project Name _____ Operable Unit _____ Phase _____

Describe the employee's duties as they relate to the exposures at the ER remedial project site

_____

_____

_____

_____

Detail the estimated exposure levels anticipated for this employee at this ER remedial project site

_____

_____

_____

_____

Describe the Personal Protective Equipment (PPE) that this employee is anticipated using at this ER remedial project site

_____

_____

_____

_____

Figure D-3 Medical Surveillance Information Sheet

8. SITE MONITORING

8.1 Equipment and Instrumentation

8.1.1 Air Monitoring Instruments - the following direct reading air monitoring instruments shall be used at the worksite

a) Gastec Model GV-86 Monitor

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure 5.19.

b) Summit Interests Model SIP-1000 Organic Vapor Monitor

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure 5.24.

c) MIE, Inc. MiniRam Personal Monitor Model PDM-3

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure 5.18.

d) Draeger Colorimetric Indicator Tubes

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure HSSIH-0004.

e) Gastec - Sensidyne Precision Gas Detection System

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure 5.20.

8.1.2 Radiation and Contamination Survey Instruments - EG&G shall provide all Health Physics monitoring at the worksite.

8 1 3 Worker Breathing Zone Sampling Equipment - The following equipment shall be used at the worksite to obtain breathing zone samples

a) MSA Flow-lite Personal Samplers

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual

b) Air Systems International Model HV-108-5 High Volume Air Sampler

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure HSSIH-0002.

c) Gillian Model LFS-113D Low Volume Air Sampler

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure HSSIII-0003.

d) Gillian Gillibrator Calibration System

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure 5.17.

8 1.4 Physical Hazards Monitoring Equipment - the following physical hazards monitoring equipment to be used at worksite·

a) MSA Type 2 Sound Level Meter

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure 5.25.

b) Quest Model M-7B and Micro 14 Noise Dosimeter

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure 5.16.

c) Vista Scientific Corporation Wet Bulb Globe Thermometer

The operation, maintenance, and calibration procedures for this instrument are located in ES&H Desktop Manual, Procedure 5 10.

Site Air Monitoring Program

The determination of a sampling strategy shall be made by the OHS Supervisor and SHSC at the worksite. For each task indicate the anticipated types and frequency of industrial hygiene monitoring that will provide requisite information concerning the hazards on the site and the exposures of workers

Task # 1 1-1 2, 1.4-1.6, 3.3

Type of Monitoring/ Surveying	Frequency of Monitoring/ Surveying	Location of Monitoring/ Surveying[1]
Organic Vapors	Continous during paint operations	D, E
Radiopart-iculate	Daily	A, B, D, E
Respirable Dust	Daily	B, C, D, E

[1] Monitoring Locations:

A-Upwind/Downwind of Work
B-Support Zone
C-Decon Area
D-Worker Breathing Zone
E-Fixed Stations
F-Other _____

Site Air Monitoring Program

The determination of a sampling strategy shall be made by the OHS Supervisor and SHSC at the worksite. For each task indicate the anticipated types and frequency of industrial hygiene monitoring that will provide requisite information concerning the hazards on the site and the exposures of workers

Task # 1 3, 2.1-2 4, 3 1-3 2

Type of Monitoring/ Surveying	Frequency of Monitoring/ Surveying	Location of Monitoring/ Surveying[1]
Atmos-pheric	Daily / as required	F
Radiopart-iculate	Daily	A, B, D, E
Respirable Dust	Daily	B, C, D, E
Organic Vapors	As determined by UNC SHSC	F

[1] Monitoring Locations

A-Upwind/Downwind of Work
B-Support Zone
C-Decon Area
D-Worker Breathing Zone
E-Fixed Stations
F-Other. During trenching operations

9. ER REMEDIAL PROJECT WORK SITE CONTROL

9.1 Site Map

The SHSC shall post a "Site Map" of the worksite in a conspicuous location in the support zone. The SHSC shall indicate the locations of the following on the Site Map

1) First Aid Stations

2) Evacuation Routes

3) Fire Control Equipment

4) Communications Equipment

5) Sanitary Facilities

6) Support Facilities

7) Current controlled area boundaries

9.2 Site work zones

Work Zones must be established as controlled areas, as necessary, to provide protection for unmanned, and/or unprotected personnel. The SHSC is responsible for erecting boundaries, posting areas, and establishing the entry requirements during work.

8 Site communications

The following systems will be used to provide communications at the ER remedial project work site

DIRECT COMMUNICATION

[ ] Radio - FM channel #_____ [X] Megaphone

NOISE MAKERS	USED FOR	VISUAL SIGNALS	USED FOR
[ ] Bell	_____	[ ] Flag	_____
[X] Air Horn	Evacuation and take cover	[ ] Flares/Smoke	_____
[ ] Siren	_____	[X] Hand Signals	Rigging & lifting operations
[ ] Whistle	_____	[ ] Lights	_____
		[ ] Signal Board	_____
		[ ] Whole Body Movements	_____

Additional emergency communication procedures information is contained in the Emergency Response section of this HSP

9 Safe Work Practices

The "Buddy System" will be followed during all activities at the worksite. Additional safe work practices are contained in the following Procedural Manuals to be used at the site for STANDARD OPERATING PROCEDURES

1) UNC Manual 102, Environmental, Safety, and Health Policy Manual

2) UNC Manual 103, Environmental, Safety, and Health Procedures Manual

3) ES&H Desktop Procedures Manual

9.5 Visitors

Visitors to the LR remedial project work site shall be cleared by the RE Project Manager prior to being granted access to the Support Zone. All visitors shall complete the Visitor Briefing required in Section 5. of the HSPP. Documentation of the Visitor Briefing shall be completed on Figure D-2 as Site-Specific Training. The SHSC shall retain copies of the training at the worksite.

10. DECONTAMINATION

10.1 Equipment Decontamination

List the decontamination steps required for non-sampling equipment and heavy machinery. Specify need for decon solution collection and over-spray control.

Station	Action	Equipment Required
1)	This section awaiting information requested from EG&G. Section information to be determined	
2)		
3)		
4)		
5)		

List the decontamination steps required for sampling equipment. Specify need for decon solution collection and over-spray control.

Station	Action	Equipment Required
1)	This section awaiting information requested from EG&G.	
	Section information to be determined	
2)		
3)		
4)		
5)		
6)		

List the disposition of decontamination wastes (Provide a description of waste disposition including identification of storage area, hauler, and final disposal site if applicable.)

Section to be determined from information to be provided by EG&G.

10.2 Selection of Step-off Decontamination Sequence

The SHSC is responsible for the proper conduct of the decontamination activities at the worksite. The Step-off Decontamination Sequences used for PPE levels A through Mod D are provided in Appendix E of the HSPP. Select the sequence necessary for the level of protection specified for the tasks being performed and post the them at the decontamination stations. Modification to the requirements may be required depending on the work being performed. *PEN AND INK* modifications shall be made by the SHSC with concurrence of the OHS Supervisor.

11. EMERGENCY RESPONSE PLAN

11.1 Emergency Contacts and Phone Numbers

The SHSC shall post this Emergency Contacts and Phone Numbers Table in a conspicuous location at the worksite. (Next to the Site Map)

Key Person or Agency	Contact Name	Phone Number
Rocky Flats Plant EMT/ Ambulance	N/A	Ext. 2911
Rocky Flats Plant Fire Department	N/A	Ext. 2911
Poison Center	N/A	629-1123
ER Site Health & Safety Coordinator		
Site Health and Safety Coordinator	Robert E. Murphy	477-2106
Field Engineer/Foreman	Henry Leighton	477-2106
ER Health & Safety Officer	Meredith Brogdon	5974
Health and Safety Liaison Officer	Larry Grocki	2190
Project Work Site	N/A	To Be Determined
Operational Health and Safety Supervisor	D. M. Frye	477-2106 888-8237 (mobile)

The SHSC shall indicate the evacuation routes to the medical treatment Facility on the "Site Map" posted according the Section 8, Site Control. Indicate the following information concerning the treatment facility.

Travel Time From Site (Minutes)	Distance to Hospital (Miles)
5	1

The SHSC shall indicate on the "Site Map" the areas within the boundaries of the SUPPORT ZONE that are considered *Area of Safe Refuge* to be used when evacuation is not possible.

1.2 Medical Emergency Response Plan

1.2.1 Signs and Symptoms of Exposure

The early warning signs, symptoms, and effects of exposure to the hazardous chemicals that are present at the LR remedial project work site are listed in the Hazards Analysis Section of this HSP.

1.2.2 Medical Emergency Procedure

The following steps shall be taken by workers at the scene of a medical emergencies. Actions at the scene will be directed by the "Person-in-charge" upon arrival.

The following Emergency Actions shall be initially utilized.

1) Survey the Scene (Is it safe)

2) Do a Primary Survey check victim for unresponsiveness (airway, breathing, circulation)

3) Phone the appropriate number listed on page 37 of this HASP (Emergency number 911)

4) Perform secondary survey (interview, vital signs, head-to-toe exams)

5) Follow American Red Cross Standard First Aid procedures for any follow-up care until emergency response teams arrive on scene

3 Fire Response Procedure

The following steps shall be taken when a fire occurs at the ER remedial project work site

1) Notify all scene personnel of fire.

2) Phone appropriate number listed on page 37 (Emergency number 2911)

3) Do Not attempt to fight a fire that is out of control or enter an area alone

4) Evacuate personnel as required and await emergency reponse teams.

11.1 Notification and Reporting

List the steps that shall be taken by the "Person-in-Charge" or a designate for reporting an emergency at the ER remedial project work site to the emergency contacts.

1) Immediately notify the appropriate person listed on page 37 of this HASP

2) Initiate the required actions of Chapter 7 (Investigation and reporting of off-normal occurrences) of UNC Geotech 102, Manual.

11.5 Equipment

List the emergency response equipment that shall be kept at the worksite. Indicate with an (*) the equipment that is for emergency use only

List the communications equipment that will be used to communicate from the EXCLUSION ZONE to the SUPPORT ZONE. List the communications equipment the will be used to communicate from the ER remedial project work site to the Medical Facility, Fire Department, Shift Superintendent, or Plant Protection Central Station

COMMUNICATIONS EQUIPMENT	LOCATION

List the heavy equipment available at the Worksite to provide assistance in an emergency

HEAVY EQUIPMENT	LOCATION
580K Backhoe (1)	TBD
Case W-30 Front-End Loader (1)	TBD
1845 Skid Loader (1)	TBD
Water Truck (1)	TBD

List the types and locations of the First Aid Kits at the Worksite

FIRST AID KITS (SPECIFY TYPE)	LOCATION
Johnson & Johnson (#3113) 300 piece (2)	TBD
Johnson & Johnson (#8161 (3)	TBD

List the type and locations of the fire extinguishers at the Worksite

FIRE EXTINGUISHERS (SPECIFY TYPE)	LOCATION
10 lbs ABC Dry Chemical (3)	TBD
5 lbs ABC Dry Chemical (3)	TBD
2 lbs ABC Dry Chemical (2)	TBD

List the locations of the 15-Minute eyewash stations and quickdrench emergency showers at the Worksite

EYEWASH STATIONS/ QUICKDRENCH SHOWERS	LOCATION
Eyewash Stations (2)	TBD
Showers	H & S Trailer

List the Personal Protective Equipment kept in reserve for use during an emergency

PERSONAL PROTECTIVE EQUIPMENT		LOCATION
Type	Amount	
Tyvek (Cotton & Impermeable	TBD	H & S Trailer
Canvas Gloves	TBD	H & S Trailer
Cotton Gloves	TBD	H & S Trailer
Hard Hats	TBD	H & S Trailer
Rubber Gloves	TBD	H & S Trailer
Rubber Overshoes	TBD	H & S Trailer
Safety Glasses	TBD	H & S Trailer
Respirators & Carts	TBD	TBD

11.6 Emergency Alarms

List the alarm signals to be used at the Worksite to notify workers of an emergency situation.

Alarm	Device/sound pattern	Action to be taken
Evacuation	Two 1-sec blasts every 30 secs to continue for 3 min.	Evacuate the controlled area - or - Move to an area of safe refuge until evacuation can be completed.
Take Cover	Three 1-sec blasts every 20 secs to continue for 3 min	Move to an area of safe refuge until "ALL CLEAR" is sounded
All Clear	One 5 sec. blast	

2.0 CONFINED SPACE ENTRY

2.1 Introduction

Confined Space is defined in UNC Manual 103, Environmental, Safety, and Health Manual, Procedure 2.7

2.2 Evaluation

None of the tasks currently planned constitute a "Confined Space Entry". The SHSC shall evaluate all future tasks to be performed at the worksite and list those that are determined to meet the criteria of working in a "confined space".

TASK # (see 4.1)	Confined space to be worked in (location, description)
	N/A

For each task identified to have a confined space entry required, obtain a "Confined Space Entry Permit", RF-46368, prior to beginning work.

The ER SHSC will ensure that the requirements and safe work practices detailed in REFERENCE 2, Procedure 6.04 are followed.

REFERENCE 2. Procedure 6.04 are followed.

13. SPILL CONTAINMENT PROGRAM

13.1 Evaluation

The spill containment program is required where major spills may occur during drum handling operations. Currently none of the tasks identified in Section 3.1 have the potential for causing a major spill. The SHSC shall evaluate all future tasks to be performed at the Worksite and list those that are determined to present a major spill hazard.

Task #	Condition that presents the spill hazard
N/A	

List the materials at the Worksite that will be used to contain and isolate the entire volume of the spilled material.

N/A

3.2 Spill response on the Worksite

List the actions to be taken in the event of a major spill on the Worksite.

1) N/A

2)

3)

4)

5)

9)

7)

3)

2)

10)